

A BROWN ALGA (*PETROSPONGIUM RUGOSUM*) NEW TO VICTORIA

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Petrospongium rugosum (Okamura) Setchell and Gardner, 1924, p. 12; 1925, p. 509; pl. XXXIX, figs. 42, 43; Smith, 1944, p. 116, pl. XVI, figs. 3, 4.

Cylindrocarpus rugosa Okamura, 1907, p. 20, pl. V, figs. 1-6.

On the extensive rock platforms near the lighthouse at Point Lonsdale *Hormosira banksii* (Turner) Decaisne and *Gelidium pusillum* (Stackhouse) Le Jolis are the main species present in the lower littoral, covering a wide area of rock with a small vertical range. On these horizontal surfaces, not extending into the reef pools, is a conspicuous encrusting brown alga which appears to be identical with *Petrospongium rugosum* (Okamura) Setch. & Gard. found in Japan and California, and not recorded from Victoria.

The plants are a deep chestnut brown, more or less circular in outline, at least when small, and up to about 5 cm. in diameter, to about 3 mm. high and with a very markedly convoluted surface even when small. The surface is slippery and glossy, and the texture firm.

The thallus consists of branching filaments (Fig. 1); the lower parts of these form a colourless medulla of loosely compacted large swollen cells and multicellular rhizoids arising perpendicular to the filaments. The assimilatory cortical filaments are tightly compacted, narrow (6-10 μ wide), with the ultimate branches 2-6 cells long and the cell-length equal to twice the width. Colourless hairs about 7 μ wide arise at the base of the cortical region and project well beyond the surface of the thallus.

Unilocular sporangia are borne on 1-2(-4)-celled pedicels arising at about the same level as the hairs. The sporangia are 18-20 μ wide, 80-100 μ long, and primarily ellipsoidal, but frequently have an irregular shape with the pedicel commonly to one side instead of at the base. The top of the sporangium lies 20-40 μ below the thallus surface.

The plants agree well with descriptions and figures of *P. rugosum*. The European species *P. berkeleyi* (Grev.) Naeg. has been recorded from New Zealand by Lindauer, with the remark that "the New Zealand plants do not quite match the boreal", and the short description calls the plants "wrinkled", which is not characteristic of *P. berkeleyi*. Possibly the New Zealand and Australian plants belong to the same species; the Australian plant is not *P. berkeleyi* (as far as I understand that species from various European descriptions and figures).

In comparing the Pacific and European species Setchell and Gardner remark that in *P. rugosum* the peripheral filaments are about twice the diameter of those in *P. berkeleyi*, yet they give 8-11 μ for the diameter in *rugosum* and both Newton and Hamel give 10-15 μ in *berkeleyi*. Setchell and Gardner also mention that there are differences in the branching of the peripheral filaments, without actually describing them, and they are not apparent from the figures available. However the

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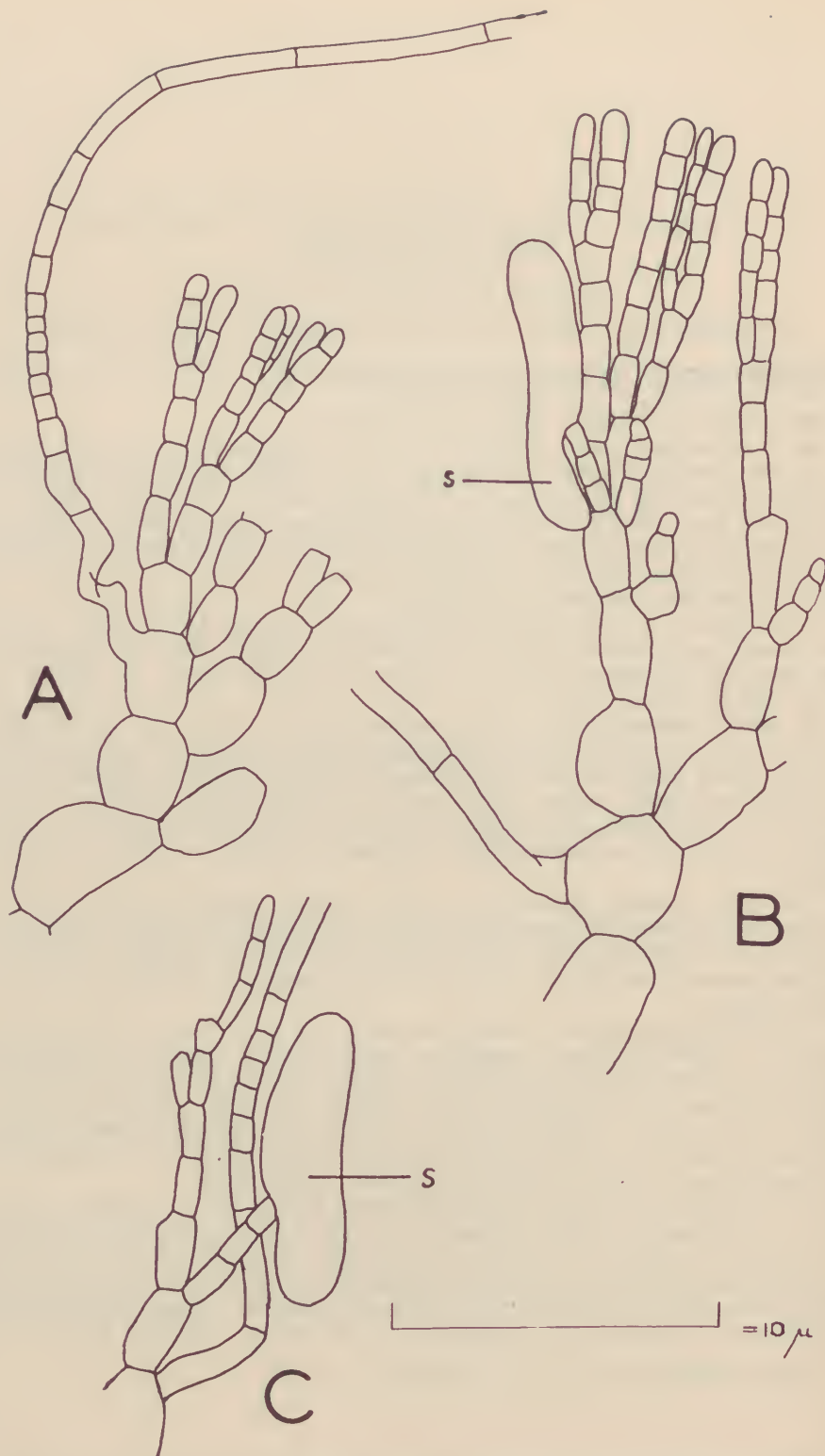


FIG. 1.—A. Portion of outer surface of thallus, showing assimilatory filaments and hair.
 B & C. Portions of the outer surface of a fertile plant, showing unilocular sporangia
 "S" ($90 \times 28 \mu$).

markedly wrinkled surface of *P. rugosum* seems to be a reliable character to distinguish this species, and possibly also the lateral attachment of sporangium to pedicel.

Smith records *P. rugosum* as an annual on the Monterey Peninsula, appearing in early summer and disappearing in late winter. The Point Lonsdale plants have not been looked for all round the year, but have been common in May, June, September and October of 1954, and whether they are absent during any of the other months is not known. It seems strange that these plants, whose glossy dark thalli stand out against the light-coloured rock of readily accessible parts of the reef, have not been collected previously, or at any rate recorded, from this classical collecting ground.

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